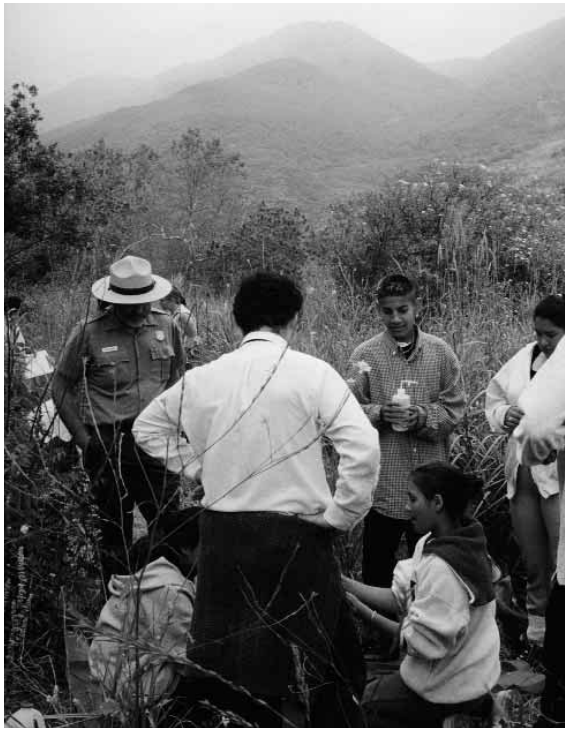
Welcome…

to National Park Labs: Studies of Wildland Fire Ecology. This is one of five *National Park Labs* programs designed to enhance science, math, and technology studies at the high school level. The five programs are:

- *Studies of Wildland Fire Ecology* at Santa Monica Mountains National Recreation Area
- *The Chihuahuan Desert Lab* at Carlsbad Caverns and Guadalupe Mountains National Parks
- *Water Under Fire* at Lowell National Historical Park
- *National Park Labs at the Presidio and at Milagra Ridge* at Golden Gate National Recreational Area
- *Bridging the Watershed: An Educational Partnership Between Potomac Area Parks and Schools*



The *National Park Labs* program is the first national effort to develop opportunities for high school students in the national parks. The size and scope of this program is possible because of Toyota USA Foundation's and the National Park Foundation's active interest in supporting science and mathematics education in addition to the national parks.

Enclosed you will find a teacher's guide and a CD-ROM that contains an electronic version of the teacher's guide, student activity scenarios, and additional background information.

Santa Monica Mountains National Recreation Area's education staff is interested in your comments and suggestions for improvement. To comment, find out more about the program, obtain the most current field protocols or schedule a program please contact us at 805-498-0305 or 805-370-2348. The field protocols are also at (www.nps.gov/samo/educate//Fire%20Website/index.htm). Thank you for your interest in Santa Monica Mountains National Recreation Area.

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National Park Labs: Studies of Wildland Fire Ecology *program was developed jointly by the National Park Service, Los Angeles Unified School District and twenty other organizations. This program was made possible through a generous grant from the Toyota USA Foundation, through the National Park Foundation.*

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Printed on recycled paper with vegetable-based inks 7/01

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Background Information

Santa Monica Mountain National Recreation Area's **National Park Labs: Studies of Wildland Fire Ecology** is one of five National Park Labs models designed to enhance science, math and technology studies at the high school level. The program provides students with the opportunity to study wildland fire ecology in the recreation area and provides both students and teachers with practical curriculum-based scientific experiences that build appreciation for park resources. Students are also exposed to career opportunities in resource management, science, math, and technology. The program is designed to meet high school Core Concepts for Integrated/Coordinated Science I and II curriculum.

All National Park Labs models include the following components:

- Curriculum Development
- Teacher Training
- Student Field Trips
- Evaluation

A national evaluation assessed the efforts of each of the National Park Labs models and the overall effectiveness of the National Park Labs program.

Why Fire Ecology?

All the land within the Santa Monica Mountains has burned at least once since fires began to be mapped in the early 1900s. As part of a Mediterranean biome, this occurrence is a natural component of the Santa Monica Mountains ecosystem. Each year, Los Angeles and Ventura county residents living adjacent to, and within, this ecosystem experience "fire season" and the heightened awareness of the possibility of wildfire.

The local perception of fire and the influence of the media greatly affect the National Park Service's (and other agencies') management of the land and decisions made in the event of wildfire. As a result, the curriculum focuses on the role of fire as part of this Mediterranean biome; the ingredients, conditions, and behavior of fire; how it affects the vegetation, soil and water of the area; and finally, on human influence including the use of prescribed fire, wildland/urban interface, conflict resolution, and the media.

Because the curriculum strives to teach a more comprehensive understanding of National Park Service resources and fire, it is our hope that it will create a more informed public view and, ultimately, stewardship of the land.

Overview

Within this package you will find a CD-ROM that contains student scenario activities as well as an electronic version of the printed materials that are included in this notebook. The curriculum is progressive and builds on the knowledge of each prior lesson.

The teacher materials provided are broken down into three parts:
1. ***Teacher Guidelines*** that provide the concept, objective, method, materials, duration, and procedure for conducting the lesson.
2. ***Student Handout*** that provides information about the lesson topic.
3. ***Student Investigation Worksheet*** with activities and questions pertaining to the lesson.

The following gives a brief overview of the lessons:

The lessons **Biomes of the World** and **Mediterranean Biome** introduce students to the study of biomes with emphasis on the Mediterranean biome of Southern California. The study continues with **A Closer Look** which teaches about the ecosystem of the Santa Monica Mountains — the best local example of a Mediterranean biome. Through the lessons students will be able to explain the features of a biome, determine the biome of their local area, explain the features of a Mediterranean biome, and identify where the Santa Monica Mountains exist in relation to their school/home.

In **Ingredients of a Fire** and **Conditions for a Fire**, students become more familiar with one of the components of a Mediterranean biome – *fire*. They conduct in-class labs to learn the three ingredients of fire, the chemical reaction that takes place to produce oxidation and combustion, what determines "fire season," and how specific heat plays a role in plant moisture levels.

To determine the influence of plant moisture levels and weather on fire behavior, the lessons **Fire & Plants** and **Fire Behavior & Weather** have students conducting in-class labs to gather, identify, and graph plant moisture levels of local plants and conducting a dry air/transpiration lab to identify the effects of wind and relative humidity on those levels. The GLOBE Atmosphere Investigation is also conducted to prepare students for completing the same lab in the field.

The next two lessons use GLOBE investigation labs to prepare students for their field investigation. **Fire & Soil** and **Fire & Water** help students determine how a fire affects the soil and water of an area.

The next lesson, **Field Study Evaluation**, is a post-field study evaluation that provides questions for students to help them evaluate data collected in the field. Students will evaluate the effects of fire, the conditions for fire, and then will compare the data collected to what they have learned about a Mediterranean biome.

The next three lessons introduce the topic of human influence on the local biome and what land managers have to consider to ensure a healthy ecosystem. **Prescribed Fire** explains the guidelines for a Burn Plan as students determine what they think were the breakdowns in a plan involving the Cerro Grande Prescribed Fire. **Wildland/Urban Interface** brings up land management issues that arise when homes and businesses are shared with open space. Students read through a scenario and determine the problem, issue, and stakeholders involved. **Wildfire & the Media** explains how the media plays an important role in how a wildfire is perceived and public opinion is formed. Students review samples of wildfire reporting and determine which words sensationalize and influence by distorting the truth.

The final lesson, **Santa Monica Mountains National Recreation Area—Your Park**, serves to assess students' understanding of what they have learned, to describe the value of the Santa Monica Mountains, and to evaluate the impact people have on them.